Texas.—Brownsville, December 8, 1910, C. A. Hart, 1 o. In my experience, this species is restricted entirely to grasses. where the adults occur throughout the year at the base of the leaves, in the region of the axils. Morgan records it also from cedar, but this record is probably based on a single female which had paused in flight. The life habits are thus quite different from those of the species of allied genera, all of which live in more or less exposed situations in the flowers or on the leaves of plants. The ovipositor may have degenerated from disuse, the necessity for the insertion of the eggs in plant tissue to secure protection having disappeared with the changed habitat of the insect. In this respect, as Dr. Hinds remarks, the species shows a divergence toward the Tubulifera, which lay their eggs wholly externally. It should be added that so great is the reduction of the ovipositor that Miss Beach in describing the species was led to believe her specimens all males, whereas they were really all females. She directed attention in her discussion of the insect to the depressed head, the produced front, the position of the ocelli, and

# DESCRIPTIONS OF NEW ICHNEUMONIDÆ AND TAXONOMIC NOTES.

By R. A. Cushman, Bureau of Entomology.

The present paper consists largely of descriptions of new species of economic importance, together with some notes on previously described species and genera and the designation of a new genus.

# Calliephialtes thurberiæ n. sp.

the elongate fourth antennal segment.

In color and markings this species is very like *Pimpla notanda* Cress., which should also be referred to *Calliephialtes*, but in structure and in the white lower surface of the scape and pedicel in the male it is more closely

allied to grapholitha Cress.

Female. Length 9 mm.; ovipositor 8 mm. Face as wide as long and with a short median carina below the antennæ; distance from side of clypeus to eye much shorter than malar space; eyes slightly emarginate within; postocellar line sub-equal to the ocell-ocular line; occiput but weakly excavated; head throughout polished and impunctate; pro- and mesothorax polished and practically impunctate; notauli distinct anteriorly, the prescutum, viewed from above, subtruncate; foveolate furrow of mesopleura obsolete above position of punctiform fovea, the latter scarcely impressed; carina between metapleura and propodeum not obsolete in front of spiracle; propodeum polished, with scattered punctures laterally; nervellus broken at about the middle and at a distinct angle; first tergite

about as wide apically as long, much shorter than second, anterior excavation polished, carinæ obsolescent, sparsely punctate apically and more strongly so laterally; tergites 2-5 similarly punctured, the elevations on

3-5 nearly impunctate.

Black with mesonotum laterally, scutellum entirely, and postscutellum apically, rufous; spot below the tegula, mesosternum and pleuræ below, hind coxæ and all femora ferruginous: mandibles pale at base; pedicel beneath and scape narrowly at apex, palpi, front and middle coxæ, trochanters, except basal joint of hind pair, tegulæ and line on pronotum, whitish; hind tibiæ with a yellowish longitudinal stripe below which entirely embraces the tip, upper side whitish with small infuscated spot near base; remaining portions of legs pale stramineous with the hind tarsal joints darker apically; wings hyaline, veins and stigma fuscous white at base.

Male. Length 8.5 mm., antennæ 5.5 mm. Differs from female as follows: face relatively somewhat longer; ocell-ocular line somewhat shorter than postocellar line; first tergite about one-third longer than wide, polished medially.

The ferruginous color is paler throughout and embraces the entire mesonotum and metapleuræ in addition to the areas enumerated in the description of the female; legs paler, front and middle pairs largely white.

Host: Anthonomous grandis thurberia Pierce.

Type locality: Santa Rita Mts., Ariz. Type: Cat. No. 19157, U. S. N. M.

Described from two females and a male reared from larvae of the host in bolls of *Thurberia thespesioides*, the females from material collected by Mr. E. A. Schwarz, April 12, 1913, in Stone Cabin Canyon and the male from material collected by Mr. Schwarz March 12, 1913 at McCleary's Ranch, both localities in the Santa Rita Mts. The paratype female is almost identical with the type.

# (Pimpla) Calliephialtes grapholithæ (Cress.)

Synonym.—Calliephialtes xanthothorax Ashm.

### Genus Homaspis Foerster.

The only character used by Foerster to separate this genus from *Notopygus* Holmgren is the lack of an arcolet in the front wing. The genotype, *H. rufinus* (Grav.), has the arcolet, while Davis's two species and the one described below lack it. Better characters for separating the two genera are found in the apically impressed clypeus in *Homaspis* and its slender legs, the hind tibiæ being much longer than their femora, while in *Notopygus* the hind tibiæ are very stout and hardly longer than their femora.

#### Homaspis nigripes, n. sp.

Distinct from either of the two species described by Davis in its larger size and its largely black legs.

Female. Length 16 mm. Head transverse, the temples rather broad and strongly rounded; clypeus hardly more than a fourth as long as wide. sparsely punctured and obscurely transversely rugulose; eves nearly touching the mandibles, parallel within and broadly, weakly emarginate; face nearly twice as wide as long, gibbous immediately below the antennæ, flat below, rather coarsely, densely punctured; front impressed on each side above the antennæ, scupltured like the face but smooth in the impressions; vertex and temples weakly punctured; ocell-ocular and postocellar lines equal and somewhat greater than diameter of lateral ocellus; thorax weakly, densely punctured, notauli rather weak; propodeum with eight areas, five basal and three apical, areola and petiolar area separated, areola polished, the other basal areas weakly punctured and apical areas more or less transversely rugulose; spiracle oval; abdomen slender, its sides very gradually divergent nearly to apex, weakly punctured; first tergite four times as long as apical width, parallel sided before the spiracles, which are placed somewhat beyond the middle, half as wide at spiracles as at apex, dorsal carinæ weak, fading out shortly beyond the spiracles, but with a weak median impression extending somewhat further; second tergite about two-thirds as long as first with weak median impression; third and fourth subequal to second, fifth only about a third as long as the others, mostly hidden above; wings without areolet; nervellus broken slightly above middle; hind tibiæ somewhat longer than their tarsi and about a third longer than their femora.

Black with abdomen, except basal three-fourths of first tergite, rufous; clypeus, mandibles, except apices, inner orbits below, irregular spot in middle of face, scape beneath, spot above eye, and scutellum above, yellow; wing bases, tegulæ, spots in front and below tegulæ, front coxæ outside, two small spots on middle coxæ, front and middle tibiæ and tarsi and apices of their femora, and articulation between hind femora and tibiæ white; legs otherwise black, the front and middle oncs somewhat piceous; wings yellowish-hyaline.

Type locality: Estes Park, Colo. Type: Cat. No. 19304, U. S. N. M.

A single specimen taken by F. H. Snow August 1892 and bearing the label U. of K. Col. Lot. 153.

# Notopygus scutellatus n. sp.

In my table to the North American species of this genus this species runs closest to *virginiensis* Cush., from which it is at once distinguishable by its pale scutellum, postscutellum, and front and middle coxæ and its apically black hind tibiæ and tarsal joints.

<sup>&</sup>lt;sup>1</sup> Proc. U. S. N. M., vol. 48, 1915, p. 511.

Female. Length 15 mm.; antennæ 12 mm. Differs from virginiensis Cush, as follows: antennæ black with an obscure indication of a pale annulus about two-thirds of the way to tip; tapering apically, flagellum 45-jointed (in type of virginiensis tips of antennæ are broken off); propodeum with middle area transversely rugose at top of posterior declivity, spiracle rather large oval (in virginiensis the spiracle is small and round); scutellum and postscutellum, tegulæ and spots in front and below, yellow; hind coxæ black, front and middle coxæ yellow, testaceous at base; all trochanters vellow, those of hind legs somewhat darker; front and middle femora testaceous, yellow at base and apex; hind femora black, yellow at base and apex; front and middle tibiæ and tarsi pale testaceous, the tibiæ vellow at base; hind tibiæ vellow at base, black at tip, their tarsi yellowish, the joints apically infuscate; abdomen piceous-black with apical segments and ovipositor vellowish; first tergite apically, second entirely, except an obscure dark spot on each side of middle, and basal half of third testaceous; first tergite similarly though less coarsely sculptured, its sides arcuately divergent beyond the spiracles (in virginiensis the sides beyond the spiracle are at first concave then arcuate); second tergite with carinæ weak, more finely punctured; remaining tergites polished, minutely punctured.

Type locality: Cornwall, Idaho.

Type: Cat. No. 19299, U. S. N. M.

A single specimen taken by C. V. Piper on August 1, 1898. (Monoblastus) Trematopygus caliroæ (Viereck).

The types of *Monoblastus calirow* Vier., described from specimens reared by the present writer from *Caliroa cerasi*, run in Davis's table to this genus, and agree very well with his description of *fusculosus* Davis. Davis's description is based on the male sex only. Before me are the two females and the male of the type series of *calirow* Vier. together with a male and a female taken by me on cherry trees badly infested with pear slug at North East, Pa. The males have all of the characters mentioned in the description of *fusculosus* and in addition have the apical tergites somewhat infuscated. The females differ from the males in having the wings somewhat paler, the first tergite red except the extreme base and the carinæ, the apical tergites red, and the pale color of the coxæ, mandibles, trochanters and tegulæ more reddish.

# Trematopygus eriocampoididis n. sp.

In Davis's table to the genus this species will run to fusculosus Davis, but differs from that species and calirox (Vier.) in having the abdomen entirely black.

Female: Length 5 mm.; antennæ 6 mm. Face polished, sparsely, minutely punctured, and with a very small, rounded tubercle medially below

the antennæ; clypeus coarsely, rugulosely punctured; inner margins of eves sinuate opposite the antennal fossæ; front and vertex polished and very minutely punctate; mesonotum polished, minutely punctate, impressed medially; notauli strongly impressed anteriorly, prescutum truncate and prominent; pronotum laterally polished, minutely punctate and somewhat rugulose; mesopleura polished, punctate below and anteriorly, a short, broad impression in the position of the sternauli, prepectal carina distinct and approximating the anterior edge of the pleura about half way up; metapleura sparsely punctured anteriorly, scabrous posteriorly; propodeal caring strong, basal median and lateral areas polished, all other areas, especially the apical ones, more or less roughly sculptured; first tergite about as wide apically as long, dorsal carinæ sharp and extending two-thirds of way to apex, polished between carinæ, otherwise punctate. especially laterally toward the apex; second tergite basally fine, rugulosely punctate, apically together with the remaining tergites minutely punctate, polished; ovipositor nearly perpendicular, barely extending above the dorsum; subdiscoidal vein of hind wing nearly interstitial with lower end of nervellus.

Black, with coxe black, the front and middle ones pale at apex; mandibles at base and tegulæ pale; clypeus piceous at sides; abdomen more or less reddish on the sides apically; legs red with trochanters, front and middle femora apically, front and middle tibiæ and tarsi and hind tibiæ, except apices, paler; hind tibiæ at apex and hind tarsi fuscous; wings dusky, yeins and stigma fuscous.

Male. Very like the female with a somewhat greater tendency to red on coxe and abdomen, and with the antennæ paler beneath at base.

Host: Caliroa (Eriocampoides) cerasi L.

Type locality: North East, Pa.

Type: Cat. No. 19154, U. S. N. M.

Described from six females and four males (Quaintance No. 10934) taken by the writer August 26 and Sept. 5, 1914 on cherry trees badly infested by the pear slug, paratype a in the act of

ovipositing in a nearly full-grown slug.

This species shows some variation in the color of the abdomen and coxe and in the sculpture of the propodeal areas, pleure, and tergites, the color varying toward reddish-piecous and the sculpture showing more or less reduction on the parts mentioned. Paratype b exhibits some curious abnormal characters. In this specimen, a female, the prescutum is impressed anteriorly; the propodeum is very short, the basal areas being almost entirely obliterated; and the abdomen and legs are much shorter and stouter than in a normal specimen.

#### GENUS OMORGUS FOETSter.

The following table includes those species of the genus the types of which are in the National Museum, and shows the affinities of the two new species described below.

# Table of Species

	Table of Species.
1.	Posterior orbits sloping roundly inward behind the eyes. 2 Posterior orbit straight and broad. 6
2.	Hind tibiæ white at base and in the middle with a black annulus near the base and another at the tip, the two connected below by a reddish stripe; hind basitarsus white at base, front and middle coxæ mostly reddish
3,	Hind tibiae reddish, sometimes infuscated near base and at apex 3 All coxæ red; scape beneath not pale; nervellus curved outward and not broken; fovea of second tergite much nearer to base than to
	spiracle
4.	to base than to spiracle
5.	black
	First tergite without a median dorsal impression and gradually swollen apically; ovipositor half as long as abdomen; hind trochanters red; wing veins rufous; nervellus not broken, the trace of the subdiscoidal vein interstitial
6.	Hind and middle femora infuscated; scape not pale beneath; ovipositor three-fifths as long as abdomen; nervellus broken well above anal vein; large species, 8 mm
Oı	norgus tortricidis n. sp.

Very closely allied to nolæ Ashm., but easily distinguished from that species by the characters given in the table to species.

Female. Length 5.5 mm.; ovipositor 2 mm. Head opaque granular and clothed with white pubescence; clypeus slightly elevated and with a shallow median impression, sparsely punctate; malar two-thirds as long as basal width of mandibles; eyes very shallowly emarginate within; thorax opaque granular with scattered faint punctures; propodeum with strong carine, areas granular, the petiolar area transversely rugulose posteriorly and deeply excavated, areola barely angulate at the costulæ, basal middle area minute quadrate; areolet minute, with the outer cross vein bullated apically; nervellus distinctly broken some distance above anal vein; first tergite with a punctiform impression medially somewhat in front of the spiracles, the segment in side view swelling somewhat abruptly from this point backward.

Black with all coxe and hind trochanters black, rest of legs, mandibles, and scape beneath rufo-testaceous, the front and middle legs somewhat paler, the hind tibiæ slightly infuscated apically and near the base; tegulæ yellowish; wings hyaline, veins and stigma fuscous.

Male. Length 5 mm. Differs from the female but very slightly.

Host: Polychrosis viteana.

Type locality: North East, Pa. Type: Cat. No. 19155, U. S. N. M.

Described from a large series of both sexes reared by the author and his associates, Dwight Isely and E. R. Selkregg, from the above host under Quaintance No. 7895, during the season of 1914. This species has been previously recorded from the same host by Johnson and Hammar (Bur. Ent. Bul. 116, Part II, p. 48) as Omorgus nolæ Ashm. race.

The species varies more or less in nearly all the characters mentioned above, especially in venational and propodeal characters.

### Omorgus ferrugineipes Ashm.

Three females and a male of this species are at hand reared by the writer from larvæ of *Polychrosis viteana* at North East, Pa., during the season of 1914 and under Quaintance No. 7996. These differ only in minute details from the unique type male. In the female the basal middle area of the propodeum is triangular but not petiolate behind as it is in type. The female is 5 mm. long and the ovipositor 1.25 mm.

#### Omorgus phthorimaeæ n. sp.

This species is very distinct from all the species included by the annulation of the hind tibiæ.

Female. Length 5 mm.; ovipositor 1.25 mm. In size, form, and sculpture very like tortricidis, described above, but differing from that species in the following particulars: clypeus not at all elevated and without shallow median impression; basal middle area of propodeum twice as wide at base as at apex and about two and one-half times as long as wide at apex, areola distinctly angulated at the costulæ, its bounding carinæ parallel for a short distance back of the costulæ; first tergite without median impression and in side view more evenly swelling posteriorly; nervellus less distinctly broken sometimes not at all.

Black with the coxe and basal segment of posterior trochanters black; mandibles, palpi, trochanters, except as noted above, and tegulæ, whitish; posterior tibiæ white with the apex and an annulus near the base black, the two connected beneath by a reddish stripe; hind basitarsus white with apex black; middle tibiæ and tarsi with same arrangement of color as in hind legs but the black replaced by fuscous; all femora and front tibiæ of varying shades of rufous, the hind femora darkest and front tibiæ lightest.

Male. Differs from the female largely in the more contrasting colors of the legs, the lack of annulation on the middle tibiæ, and in having the basal middle area of the propodeum reduced to a triangle connected with the areola by a single short carina.

Host: Phthorimaca operculella.
Type locality: Pasadena, Calif.

Type: Cat. No. 19156, U. S. N. M.

Described from 4 females and 6 males reared from the above host by J. E. Graf in November, 1914, under Chittenden No. 2230°.

This species varies in the following manner: one of the females has the sides of the abdomen beyond the second tergite largely red; the size and form of the basal middle propodeal ares varies in more or less reduction from the type; and some of the males show a rather distinct color pattern on the middle tibiæ.

#### Genus Xenoschesis Foerster.

The only species originally included in this genus and therefore the genotype is *Exetastes fulvipes* Grav., so placed by Jemiller (Ber. Ver. Augsberg, vol. 31, 1894, p. 147). The same species was selected by Kriechbaumer as the type of his genus *Glyptocentrus* and by Viereck as the type of *Polycinetis* (Foerster) Dalla Torre and *Polycinetus* Thomson. The genotype of *Polycinetis* Foerster as fixed by Woldstedt is *Notopygus resplendens* Holmgren. This species is shared as a genotype by *Prosmorus* Foerster, by fixation of Thomson, and, through its variety *polita* (Foerster) Kriechb., by *Eriglæa* Foerster, by fixation of Viereck. All of the above was pointed out by Viereck (U. S. N. M., Bůl. 83).

Examination of specimens of the genotypes, fulvipes as determined by Schmiedeknecht and resplendens as determined by Roman, convinces me that they are congeneric. Therefore Polycinetis Foerster, Polycinetus Thomson, Glyptocentrus Kriechbaumer, Prosmorus Foerster, and Eriglæa Foerster are all syno-

nyms of Xenoschesis Foerster.

As to the position of the genus, I prefer to place it with the Banchini, rather than with the Mesoleptini. It should be noted

that in dichotomy 6 in Ashmead's table the first character is useless since the arcolet varies in respect to its presence or absence and length of the petiole. In the specimen of the genotype on which my study is based it is strongly petiolate. The possession or lack of a large petiolar area on the propodeum is a specific character. The genotype and resplendens lack the carine, while of the two American species described below one lacks them and the other has them well defined.

#### Xenoschesis slossonæ n. sp.

Agrees fairly well with the description of *limatus* (Cress.) but differs in having the propodeum carinate.

Female. Length 11 mm.; antennæ 10 mm.; ovipositor 0.5 mm. Clypeus a third as 'ong as wide, broadly truncate, transversely ruguloso-punctate; face nearly twice as wide as long, densely, rather coarsely punctate, especially medially, slightly elevated above; malar space nearly half as long as basal width of mandibles; eyes sinuate within and parallel; flagellum 40jointed, apically attenuate; front densely, minutely punctate; temples and vertex polished, impunctate; thorax and propodeum polished, rather densely, finely punctate, the atter short and gibbous above, with the lateral caring strong beyond the apical carina but subobsolete before, the apical carina weak, obsolete outside the lateral carina, areola punctiform, basal median area weakly defined and minute, petiolar area impunctate, spiracle oval; wings with areolet; nervellus broken slightly above middle; abdomen deeper than wide, subpolished, very minutely shagreened; first tergite about three-fifths as wide at apex as long, with two subcarinate dorsal ridges reaching to about two-th rds of the way to the apex and sub ending a long tudinal depression, spiracles placed slightly be ore middle; second tergite about as long as basal width and subequal to third and fourth, others rapidly dimin shing in length; hypopygium reaching slightly beyond apex of eighth tergite.

Black, with elypeus, mandibles, tegulæ, wing bases, and apices of sternite 1-3 white; palpi pale; antennæ brown, paler below, scape and pedicel piceous; legs testaceous except as follows: front and middle femora at apex, all tibiæ except apices, front and middle tarsal joints basally white; hind femora and tibiæ at apex and hind tarsi throughout black, the basitarsus slightly paler at base; hind calcariæ dusky white; wings hyaline,

stigma piceous, pale at base.

Type locality: Mt. Washington, N. H.

Other locality: Spruce Brook, Newfoundland.

Type: Cat. No. 19302, U. S. N. M.

Two females, the type collected by Mrs. Slosson and the para-

type by E. M. Walker on July 24, 1914.

The paratype differs from the type in having the clypeus pale only at apex, antenne black, flagellum 44-jointed, propodeum with the carinæ weaker, the areola open behind, legs with the colors of the tibiæ, especially of the middle legs, more contrasting, tergites 1 and 2 relatively wider.

### Xenoschensis gracilis n. sp.

Female. Length 11 mm.; antennæ 8.5 mm.; ovipositor barely exserted. Differs from slossonæ, described above as follows: clypeus somewhat shorter; face uniformly densely punctate; flagellum 33-jointed; propodeum not gibbous above, without carinæ except lateral carinæ at apex, smooth and impunctate, spiracle round; nervellus broken below the middle; abdomen wider than deep, polished, sparsely, weakly punctate; tergites relatively longer, the first about half as wide as long and without dorsal ridges though with a weak median furrow, spiracles at middle, fifth nearly as long as fourth; hypopygidium not reaching apex of eighth tergite.

Black; clypeus and mandibles whitish; tegulæ and wing bases pale fuscotestaceous; legs rather pale testaceous, hind femora apically and their

tibiæ and tarsi throughout blackish; otherwise as in slossonæ.

Type locality: Franconia, N. H. Other locality: Banff, Alberta, Canada.

Type: Cat. No. 19303, U. S. N. M.

Two specimens, the type collected by Mrs. Slosson and the paratype without other label than the number 458.

The paratype differs from the type in no way except that the arcolet is somewhat petiolate.

### Prosmoridea, new genus.

The sinking of *Prosmorus* (Foerster) Thomson into synonymy with Xenoschesis Foerster leaves Prosmorus (Foerster) Davis without a name. It is for this that I suggest the above name, designating as the genotype Prosmorus clongatus Davis. It differs from Xenoschesis in having the propodeum completely areolated, the apical carina tuberculate above on each side, in lacking the emargination of the eighth tergite in the female, and in having the sheaths of the ovipositor very broad. It resembles in habitus much more closely Cidaphrurus and Banchus and should probably be placed with the Banchini rather than with the Mesoleptini. From the two banchine genera mentioned it differs in the complete areolation of the propodeum, the strong prepectal carina, the small oval propodeal spiracle, the petiolate first tergite with its spiracle at about the middle, the position of the fracture of the nervellus which is at or below the middle, the simple claws in the female, and from Cidaphrurus by lacking the scutellar thorn. In Foerster's table it runs to Banchus.

Bassus carpocapsæ Cush.

Since the writing of the description of this species, when only the female was known, a single male has been reared by the author from codling moth material collected in 1913 at Vienna, Va. This differs from the female in having the testaceous color of the head confined to the orbits, malar space, clypeus, and mouth, being practically obsolete on the anterior orbits; only the second and third tergites are rufous and the latter is somewhat infuscated at the apex; the hind coxæ are more largely black and the hind femora infuscated. This male is in the National Museum collection and is indicated by a red label marked: 3 Cush. det.

## THE GENUS SECODELLA IN NORTH AMERICA.

BY J. C. CRAWFORD.

This eulophid genus which has the hairs of the fore wings in part arranged in characteristic rows is also peculiar in having the under side of the fore wings furnished with a row of long hairs situated on the disc of the wing just back of the central portion of the marginal vein. This latter character I have observed in no other genus.

#### KEY TO THE FEMALES

1. First joint of funicle not distinctly longer than pedicel. 2
First joint of funicle distinctly longer than pedicle. 3
2. Larger (2 mm.) greenish, sculpture of thorax strong. ... cushmani n. sp.
Smaller (1.25 mm.) purplish, sculpture of thorax weak. acrobasis n. sp.
3. Last joint of club without an apical spicule. ... rugosus n. sp.
Last joint of club with an apical spicule ... ... 4
4. First joint of funicle longer than second, about twice as long as pedicel.

viridis n. sp.
First joint of funicle not longer than second, about one and one-half times as long as the pedicel. ... argyresthiæ Cwfd.

#### Secodella cushmani n. sp.

Female. Length about 2 mm. Dark green with bluish reflections; first joint of funicle hardly longer than pedicle, joints of funicle successively decreasing in length, the fourth subquadrate; club about as long as last two joints of funicle united; mesothorax strongly subreticulate, much more finely so on parapsidal areas; propodeum short; abdomen more bluish than head and thorax; wings hyaline with three lines of hairs from stigmal knob, one directed basad and forming boundary of area without hairs, two directed apicad; one line of hairs along posterior margin of wing and one somewhat in front of this and another line reaching apex of wing